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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,109	03/20/2002	Mouafak Arif Zaher	P67369USO	2125

136 7590 01/12/2004
JACOBSON HOLMAN PLLC
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WASHINGTON, DC 20004

EXAMINER

EDGAR, RICHARD A

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 01/12/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

CLD 12

Office Action Summary

Application No.

10/030,109

Applicant(s)

ZAHER, MOUFAK ARIF

Examiner

Richard Edgar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Response to Arguments

Applicant's arguments filed December 3, 2003 have been fully considered but they are not persuasive. Claims 9 and 11 have been canceled and independent claim 19 has been added. The specification has been amended to overcome the objections noted in the first Office action. The claims have been amended to overcome the objections noted in the first Office action. Correction of the objections is appreciated.

Applicants amendments to claims 1 and 13 have overcome the rejection of claims 1-8, 10 and 12-18 under 35 U.S.C. § 112, 2nd paragraph, spanning pages 2-4 in the previous Office action.

Applicant's remarks, which begin on page 11, start with a summary of the U.K. Patent Application *GB 2 058 218 A*. Next, Applicant states that the *GB 2 058 218 A* reference has the result similar to that of guide vanes positioned immediately before the impeller and that Applicant's invention is analogous to the placement of a second impeller in front of the original impeller. The examiner has reviewed Applicant's amended claims and cannot identify any structure or limitations that support this argument. Furthermore, the outlet of a centrifugal pump is the area on the downstream side of the impeller, including the volute; and the inlet or intake of a centrifugal pump is the area on the upstream side of the impeller.

The examiner has acknowledged that *GB 2 058 218 A* does not disclose if the pump is designed for multi-phase flow. However, Applicant's argument that Dufour (US 5,385,443) does not disclose a multi-phase flow pump is disagreed with. Merely reading the Abstract of Dufour conveys that the invention is for a pump capable of pumping a multi-phase (liquid-gas) flow.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-8, 10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over United Kingdom Patent Application GB 2 058 218 A by inventor Erich Holzhüter (Holzhüter hereinafter) in view of United States Patent No. 5,385,443 issued to Dufour (Dufour hereinafter).

Holzhüter discloses a centrifugal pump which includes a fluid inlet 3 and an outlet 7 and drivable by a power providing means (shaft), a fluid communication 5 (i.e. bleed line) providing means to provide a communication of fluid between the outlet 7 and the inlet 3 of the pump, said fluid communication 5 being such as to provide a fluid connection between the outlet and the inlet to deliver fluid of a higher pressure from the outlet to the inlet when the centrifugal pump is in operation. The fluid communication between the outlet and the inlet comprises at least one nozzle at the inlet for injection of bled fluid into the delivery line of the inlet of the centrifugal pump. The at least one nozzle has a reduced flow area, thereby increasing the velocity head of the flow (see

page 1, lines 53-55). The nozzle is oriented in respect of the delivery line of the inlet so as to impart a pre-rotation force onto the main inlet side fluid delivery; the pre-rotation force is in a direction co-rotary with the impeller rotation direction (see page 1, lines 40-42).

Holzhüter does not disclose a liquid and gas mixture being pumped wherein the impeller has four vanes.

Dufour shows in Figures 1 and 2 a centrifugal pump with an additional fluid communication 31 located in the inlet of the pump casing used to pump a mixture of a liquid and a gas comprising an electric motor used to rotate an impeller 15 having four vanes or ribs 23 located thereon. The four vanes are provided for the purpose of efficiently pumping the liquid and gas fluid mixture.

Since Holzhüter and Dufour both teach centrifugal pumps, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the impeller of Holzhüter to have four vanes when pumping a multi-phase fluid as taught by Dufour for the purpose of efficiently pumping a multi-phase fluid in a pump having a jet injector at the inlet of the pump casing.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. United States Patent Nos. 3,588,266, Re. 26,570 and 3,901,620

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are each cited for showing centrifugal pumps with bleed lines for introducing part of the outlet flow into the intake flow.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

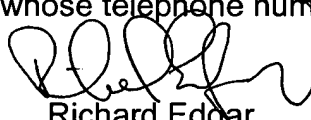
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

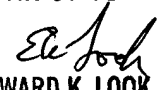
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (703) 305-0050. The examiner can normally be reached on Monday-Thursday 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.


Richard Edgar
Examiner
Art Unit 3745

RE


EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700
1/8/04